

Claims

- Sub 22
1. Method for cleaning semiconductor elements, which are received in a tank, having ozonised, deionised (DI) ultrapure water, in the case of which method ozone is generated in an ozone generator, according to the principle of silent electrical discharge, by supplying highly pure oxygen, *where?* said ozone being supplied to a contactor which has a through-flow of DI water, the ozone being dissolved in the DI water, and in which method the ozonised DI water, possibly with the supply of further chemicals, is directed through the tank having the semiconductor elements in order to clean them and the spent DI water is removed, *characterised in that* CO₂ is added to the ozone/oxygen mixture generated by the ozone generator.
 2. Method according to claim 1, characterised in that the spent DI water is filtered and re-circulated at least partially and is mixed with fresh ozonised DI water.
 3. Method according to claim 1 ~~or 2~~, characterised in that the cleaning is carried out in the tank, air being extensively or entirely excluded. *?*
 4. Method according to one of the claims 1 ~~to 3~~, characterised in that the ozone is supplied to the contactor in counterflow to the DI water.
 5. Method according to one of the claims 1 ~~to 4~~, characterised in that CO₂ is directed into the highly pure oxygen flow which is supplied to the ozone generator in order to achieve a stable concentration behaviour of the ozone generator.
 6. Method according to claim 5, characterised in that the CO₂ is supplied in a concentration of 300 to 5000 ppm. *where*

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7. System for cleaning semiconductor elements, having a container which receives the semiconductor elements, said container being connected to a device for generating ozonised, deionised (DI) ultrapure water via pipelines and having a discharge pipe for spent DI water, the device for generating the ozonised DI water having an ozone generator and a contactor, to which DI water is supplied and which is connected to the ozone generator, characterised in that a CO₂ source is provided which is connected to a connection pipe, which directs the ozone/oxygen mixture between the ozone generator and the contactor via a valve in order to introduce CO₂.
8. Device according to claim 7, characterised in that the ozone generator has a supply pipe for highly pure oxygen, which supply pipe is connected to the CO₂ source via a control element such as a choke.
9. Device according to claim 7 or 8, characterised in that the container is configured as an overflow tank with a collection device for the spent DI water.
10. Device according to one of the claims 7 to 9, characterised in that a part of the spent DI water is directed into the circulation via a filter and cleaning device.
11. Device according to one of the claims 7 to 10, characterised in that the container is sealed from the environment.
12. Method according to claim 1, characterised in that CO₂ is added in a concentration of up to 10%.

Added

A 3

add B3

Sub B2

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